

CLAIMS

1. A method of processing data defining a plurality of first polygons and texture data therefor, to generate data defining a texture map, the method comprising:

determining a respective measure of the importance of the texture data for each first polygon;

defining a respective second polygon in a two-dimensional area for each first polygon, such that each second polygon is defined with an area dependent upon the measure of the importance of the texture data determined for the corresponding first polygon; and

generating texture data for the second polygons in dependence upon the texture data for the first polygons.

2. A method according to claim 1, wherein the processing to determine a measure of the importance of the texture data for a first polygon comprises processing the texture data to determine the measure in dependence upon the content of the texture data.

3. A method according to claim 2, wherein the processing to determine a measure of the importance of the texture data for a first polygon comprises processing the texture data to determine a measure of the uniformity

of the texture data.

4. A method according to claim 2, wherein each measure of the importance of the texture data for a first polygon is determined in dependence upon colour component values of the texture data.

5. A method according to claim 2, wherein each measure of the importance of the texture data for a first polygon is determined in dependence upon greyscale values of the texture data.

6. A method according to claim 2, wherein each measure of the importance of the texture data for a first polygon is determined by calculating a measure of an extent of differences in values of the texture data.

7. A method according to claim 6, wherein the texture data is filtered and a measure of the extent of differences in the filtered texture data values is calculated.

8. A method according to claim 2, wherein each measure of the importance of the texture data for a first polygon is determined in dependence upon the number of colours

in the texture data.

9. A method according to claim 2, wherein each measure of the importance of the texture data for a first polygon is determined in dependence upon edges in the texture data.

10. A method according to claim 1, wherein the processing to determine a measure of the importance of the texture data for each first polygon comprises processing user input signals conveying importances for each of at least some of the first polygons.

11. A method according to claim 1, wherein the second polygons are defined in the two-dimensional area such that the connectivity of the second polygons is different to the connectivity of the first polygons.

12. A method according to claim 1, wherein the first polygons and second polygons comprise triangles.

13. A method according to claim 1, wherein the first polygons and second polygons comprise groups of triangles.

14. A method according to claim 1, further comprising generating a signal carrying data defining the generated texture map.

5 15. A method according to claim 1, further comprising making a recording either directly or indirectly of data defining the generated texture map.

10 16. A method of processing data defining a three-dimensional computer model comprising a mesh of polygons and texture data therefor, to generate data defining a texture coordinate map, the method comprising:

15 determining, for each polygon in the three-dimensional computer model, a respective measure of the storage area to be allocated in the texture coordinate map to the texture data for the polygon; and

20 generating a texture coordinate map by defining a respective polygon in a two-dimensional area for each polygon in the three-dimensional computer model to store texture data therefor, such that each polygon is defined with an area dependent upon the storage area measure determined for the corresponding polygon from the three-dimensional computer model.

25 17. A method of processing data defining a first texture

map comprising a plurality of first polygons and texture data therefor in a first two-dimensional area, to generate data defining a texture coordinate map for a second texture map of smaller area than the first texture map, the method comprising:

determining, for each polygon in the first texture map, a respective measure of the storage area to be allocated to the texture data for the polygon in the second texture map; and

generating a texture coordinate map by defining a respective second polygon in a second two-dimensional area for each first polygon, such that the area of the second two-dimensional area is less than the area of the first two-dimensional area, and such that each second polygon is defined with an area dependent upon the storage area measure determined for the corresponding first polygon.

18. A method according to claim 16 or claim 17, further comprising generating texture data for each polygon in the texture coordinate map from the texture data of the corresponding starting polygon.

19. A method according to claim 16 or claim 17, further comprising generating a signal carrying data defining the

generated texture coordinate map.

20. A method according to claim 16 or claim 17, further comprising making a recording either directly or indirectly of data defining the generated texture coordinate map.

21. Apparatus for processing data defining a plurality of first polygons and texture data therefor, to generate data defining a texture map, the apparatus comprising:

an importance measure generator operable to determine a respective measure of the importance of the texture data for each first polygon;

a polygon definer operable to define a respective second polygon in a two-dimensional area for each first polygon, such that each second polygon is defined with an area dependent upon the measure of the importance of the texture data determined by the importance measure generator for the corresponding first polygon; and

a texture data generator operable to generate texture data for the second polygons in dependence upon the texture data for the first polygons.

22. Apparatus according to claim 21, wherein the importance measure generator is operable to process the

texture data to determine each importance measure in dependence upon the content of the texture data.

23. Apparatus according to claim 22, wherein the
5 importance measure generator is operable to determine each importance measure by processing the texture data to determine a measure of the uniformity of the texture data.

10 24. Apparatus according to claim 22, wherein the importance measure generator is operable to determine each measure of the importance of the texture data for a first polygon in dependence upon colour component values of the texture data.

15 25. Apparatus according to claim 22, wherein the importance measure generator is operable to determine each measure of the importance of the texture data for a first polygon in dependence upon greyscale values of
20 the texture data.

26. Apparatus according to claim 22, wherein the
importance measure generator is operable to determine each measure of the importance of the texture data for
25 a first polygon by calculating a measure of an extent of

differences in values of the texture data.

27. Apparatus according to claim 26, wherein the importance measure generator is operable to filter the texture data and to calculate a measure of the extent of differences in the filtered texture data values.

28. Apparatus according to claim 22, wherein the importance measure generator is operable to determine each measure of the importance of the texture data for a first polygon in dependence upon the number of colours in the texture data.

29. Apparatus according to claim 22, wherein the importance measure generator is operable to determine each measure of the importance of the texture data for a first polygon in dependence upon edges in the texture data.

30. Apparatus according to claim 21, wherein the importance measure generator is operable to determine a measure of the importance of the texture data for each first polygon by processing user input signals conveying importances for each of at least some of the first polygons.

31. Apparatus according to claim 21, wherein the polygon
definer is operable to define the second polygons in the
two-dimensional area such that the connectivity of the
second polygons is different to the connectivity of the
first polygons.

32. Apparatus according to claim 21, wherein the first
polygons and second polygons comprise triangles.

33. Apparatus according to claim 21, wherein the first
polygons and second polygons comprise groups of
triangles.

34. Apparatus for processing data defining a three-
dimensional computer model comprising a mesh of polygons
and texture data therefor, to generate data defining a
texture coordinate map, the apparatus comprising:

a storage area calculator operable to determine, for
each polygon in the three-dimensional computer model, a
respective measure of the storage area to be allocated
in the texture coordinate map to the texture data for the
polygon; and

a polygon definer operable to generate a texture
coordinate map by defining a respective polygon in a two-
dimensional area for each polygon in the three-

dimensional computer model to store texture data therefor, such that each polygon is defined with an area dependent upon the storage area measure determined for the corresponding polygon from the three-dimensional computer model.

35. Apparatus for processing data defining a first texture map comprising a plurality of first polygons and texture data therefor in a first two-dimensional area, to generate data defining a texture coordinate map for a second texture map of smaller area than the first texture map, the apparatus comprising:

a storage area calculator operable to determine, for each polygon in the first texture map, a respective measure of the storage area to be allocated to the texture data for the polygon in the second texture map; and

a polygon definer operable to generate a texture coordinate map by defining a respective second polygon in a second two-dimensional area for each first polygon, such that the area of the second two-dimensional area is less than the area of the first two-dimensional area, and such that each second polygon is defined with an area dependent upon the storage area measure determined for the corresponding first polygon.

36. Apparatus according to claim 30 or claim 31, further comprising a texture data generator operable to generate texture data for each polygon in the texture coordinate map from the texture data of the corresponding starting polygon.

37. Apparatus for processing data defining a plurality of first polygons and texture data therefor, to generate data defining a texture map, the apparatus comprising:

importance measure generating means for determining a respective measure of the importance of the texture data for each first polygon;

means for defining a respective second polygon in a two-dimensional area for each first polygon, such that each second polygon is defined with an area dependent upon the measure of the importance of the texture data determined by the importance measure generating means for the corresponding first polygon; and

means for generating texture data for the second polygons in dependence upon the texture data for the first polygons.

38. Apparatus for processing data defining a three-dimensional computer model comprising a mesh of polygons and texture data therefor, to generate data defining a

texture coordinate map, the apparatus comprising:

means for determining, for each polygon in the three-dimensional computer model, a respective measure of the storage area to be allocated in the texture coordinate map to the texture data for the polygon; and

means for generating a texture coordinate map by defining a respective polygon in a two-dimensional area for each polygon in the three-dimensional computer model to store texture data therefor, such that each polygon is defined with an area dependent upon the storage area measure determined for the corresponding polygon from the three-dimensional computer model.

39. Apparatus for processing data defining a first texture map comprising a plurality of first polygons and texture data therefor in a first two-dimensional area, to generate data defining a texture coordinate map for a second texture map of smaller area than the first texture map, the apparatus comprising:

means for determining, for each polygon in the first texture map, a respective measure of the storage area to be allocated to the texture data for the polygon in the second texture map; and

means for generating a texture coordinate map by defining a respective second polygon in a second two-

dimensional area for each first polygon, such that the area of the second two-dimensional area is less than the area of the first two-dimensional area, and such that each second polygon is defined with an area dependent upon the storage area measure determined for the corresponding first polygon.

40. A storage medium storing computer program instructions for programming a programmable processing apparatus to become operable to perform a method in accordance with any one of claims 1 to 20.

41. A signal carrying computer program instructions for programming a programmable processing apparatus to become operable to perform a method in accordance with any one of claims 1 to 20.